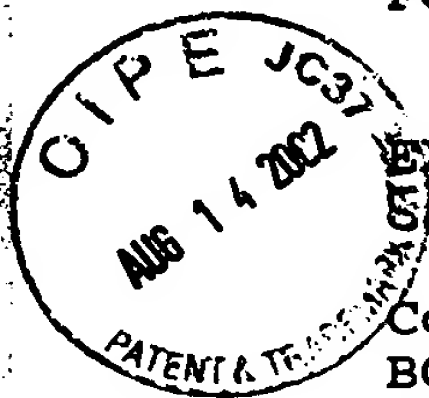


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8/29/02  
D. Bell

APPLICANT: Matthias Brunner et al  
SERIAL NO: 09/977,549 Group No.: 2881  
FILED: October 15, 2001  
FOR: METHOD AND APPARATUS FOR TESTING  
A SUBSTRATE  
EXAMINER: Bruce C. Anderson

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August 9, 2002

S i r:

In response to the Official Letter dated May 10, 2002, applicants respectfully request reconsideration of this application. The rejection of claims 16-30 as incorporating new matter is respectfully traversed. The rejection appears to be based on the conclusion that there is no support in the application as originally filed for variations in the generated signals in response to changes in the spacing or distance between the detector and the selected emission sites. However, the third paragraph on page 3 of the original specification refers specifically to changes in the detector

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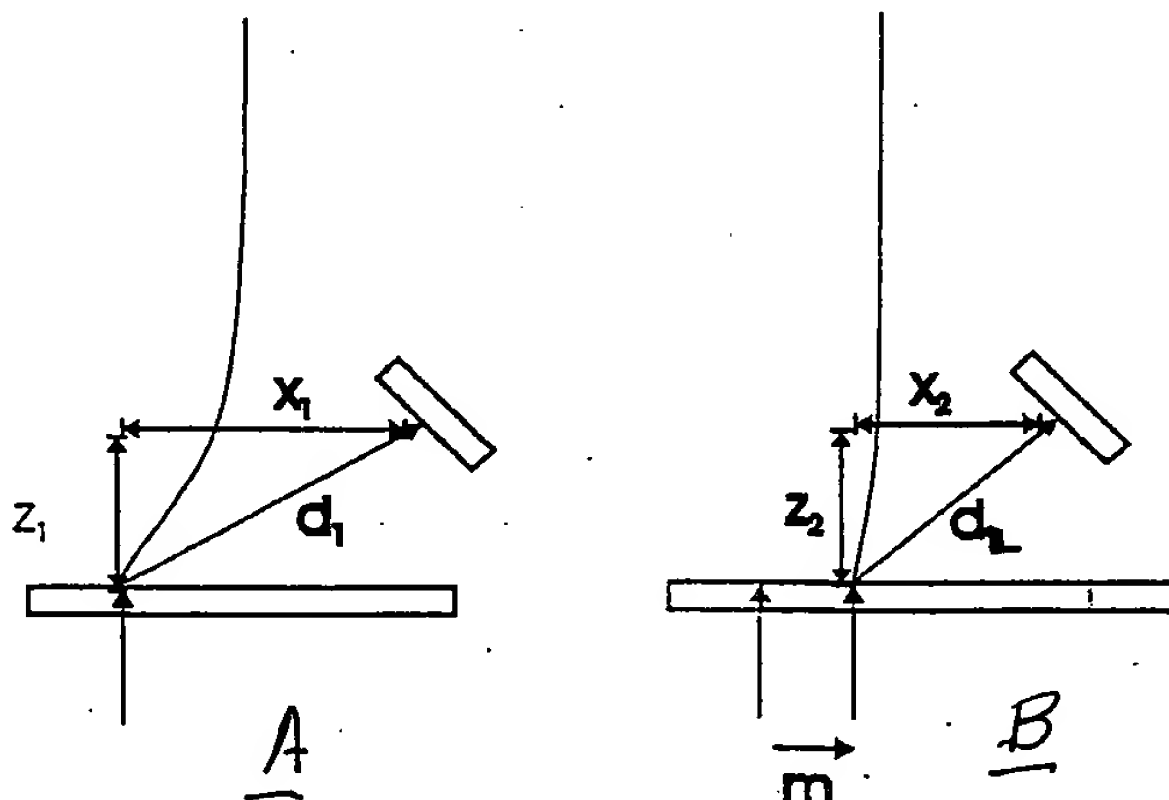
Carol A. Szynewski  
(type or print name of person certifying)

09/977,549

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signal in response to changes in the distance between the secondary particles' emitting location relative to the position of the detector. See also the paragraph bridging pages 3 and 4 of the original specification. It is believed these disclosures in the original specification provide ample basis for the passages referred to by the examiner in claims 15, 19, 22, and 26. Not only is it believed these portions of the specification provide the necessary disclosure in support of the existing claims, but also that such disclosures cannot properly be interpreted in any manner other than that recited in the claims. Accordingly, reconsideration of the rejection of the claims as incorporating new matter is believed to be in order and is requested.

With respect to the examiner's question concerning the movement in the z-direction of the detector or substrate applicants respectfully submit that there is nothing in claim 19 which even remotely suggests movement of the substrate in the z-direction. To explain the recitation in claim 19, there is included herewith the following sketches A and B:



In sketch A the electron beam is scanned at a site marked with an upwardly pointing arrow. The distance  $d_1$  from the site to the detector is determined from distances  $z_1$  and  $x_1$ . In sketch B, the sample has been moved by an amount  $m$ . The beam is guided to the same site on the sample. Obviously, however, the position of the site with respect to the detector has changed. The distance  $d_2$  is not equal to the distance  $d_1$ , even though  $z_1$  is equal to  $z_2$ . These sketches, therefore, prove there can be a difference in the distance of an emitting site from the detector even through there has been no movement of the sample in the  $z$  direction; movement occurs only in the  $x$  direction.

With respect to the examiner's inquiry on page 3 of the Official Letter relative to claims 16-30 and the inquiry as to the meaning of "in response in the space between the detector and selected sites," the quoted language does not appear in any of these claims. Claim 15 specifies "said generated signals having values which vary in response to changes in the space between said detector and different ones of said selected sites." It is believed this phrase clearly specifies that changes in the values of generated signals occur in response to changes in the distance between the detector and the sites from which the secondary particles are generated. Should the examiner have further questions concerning this matter, applicants will be glad to submit whatever further information may be required.

The rejection of claims 16-30 as being unpatentable over Roa in view of Banbury and Stille also is respectfully

traversed. None of these references takes into account the location  $(x_1, x_2)$  of the impingement of the electron beam. These references disclose only that the emission of secondary particles depends on the position of the specimen. However, the clear teaching of the applicants is to take into account changes the location of the emission site relative to the position of the detector. In order to avoid misunderstandings the following example is submitted for the purpose of explanation, but not for the purpose of limiting the invention in any way:

EXAMPLE

In case the specimen is totally homogenous on a scale smaller than the resolution of the apparatus, no contrast would be seen when the specimen is measured (no specimen-dependent signal). However, when a large area is scanned, the signal would show variations because the path of the secondary particles to the detector would vary depending on the location of the point of measurement. This location-dependent part of the signal is corrected by the present invention.

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It is respectfully submitted that there simply is nothing in the disclosure of any of the references of record which even remotely suggests either the method or the apparatus recited in the claims of this application, namely, that changes in the location of the zone of emission of secondary particles takes into account changes in the distance between the emission zone and the detector. This characteristic of applicants invention

is neither disclosed nor suggested in any of the references of record.

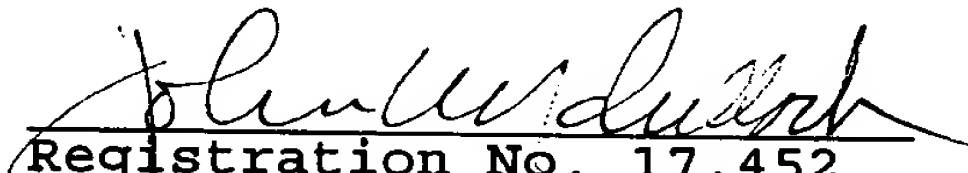
Since it is believed that the claims of this application are based wholly on the original disclosure and that such claims patentably distinguish applicants' invention over any and all of the several references of record, regardless of their being considered singly or in combination with one another, it is respectfully submitted that this application is in condition for allowance. Such action is requested.

The Office is authorized to charge or refund any fee deficiency or excess to Deposit Account No. 12-0755.

Respectfully submitted,

Matthias Brunner et al

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